Box
1/8
copy

WARS PARKS

Vision

- **Access Personal, Firm-wide, and published information (text and pictures) Large scale Hypertext-like research**

- **Fast response for interactive use**

- **Personalized Newspaper for keeping up to date (searches in the background)**

- **No cryptic searches: English Language with "These were good" feedback from user**

- **Open system for others to add components**

Wide Area Information Servers

Brewster Kahle
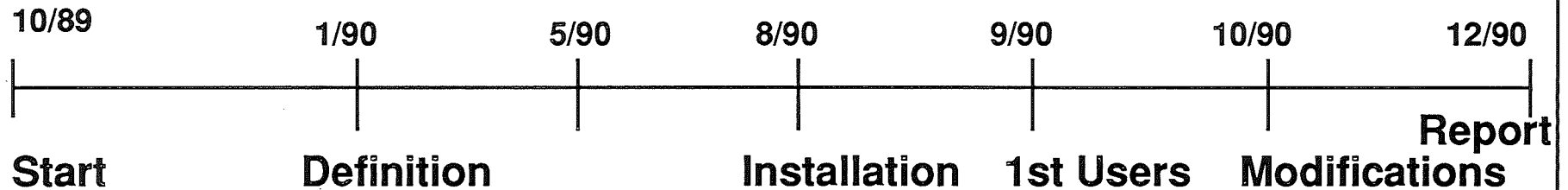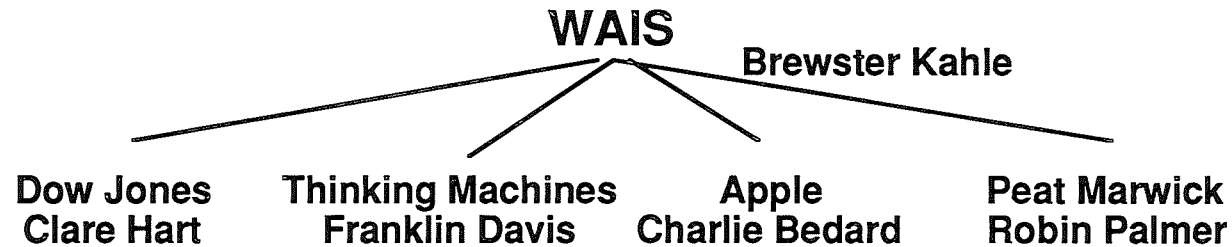Thinking Machines Corporation
August 2, 1990

- Goals
- Vision
- WAIS Architecture
- WAIS Team
- Project Pieces
- Project Structure
- Proposed Techniques
- Demonstration System Structure
- Test Stages
- Conclusion

Project Pieces

- **Dow Jones:**
  Installing WAN for information delivery
  Implementing protocol on DowQuest

- **Thinking Machines:**
  Corporate Information server on CM
  User interface on Macintosh
  Catalyst and organizer

- **Apple:**
  User interface design, implementation, test

- **Peat Marwick:**
  Data collection
  User Feedback

Project Structure

WAIS

Brewster Kahle

Dow Jones
Clare Hart

Thinking Machines
Franklin Davis

Apple
Charlie Bedard

Peat Marwick
Robin Palmer

10/89

1/90

5/90

8/90

9/90

10/90

12/90

Report

Start

Definition

Installation

1st Users

Modifications

Wide Area Information Servers

Brewster Kahle
Thinking Machines Corporation
August 2, 1990

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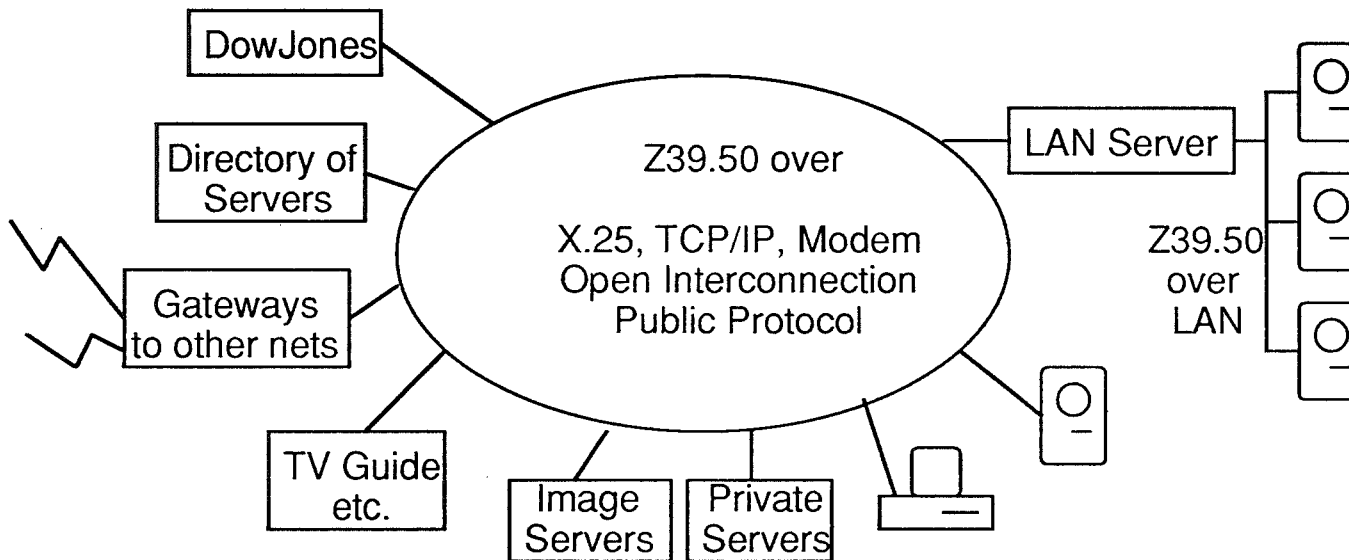- Test Stages
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- **Establish open protocol for Information Servers**

- **Produce skeleton Producer ---> Consumer system:**
  Real users from the start

- **Move into production:**
  Involve 3rd parties where appropriate

Wide Area Information Server Architecture

DowJones

Directory of Servers

Gateways to other nets

TV Guide etc.

Z39.50 over

X.25, TCP/IP, Modem
Open Interconnection
Public Protocol

Image Servers

Private Servers

LAN Server

Z39.50 over LAN

Users Problems:
   Selecting Servers
   Answering Questions
   Staying informed
   Organizing Responses

Architecture Issues:
   Scalability
   Security
   Business model for servers
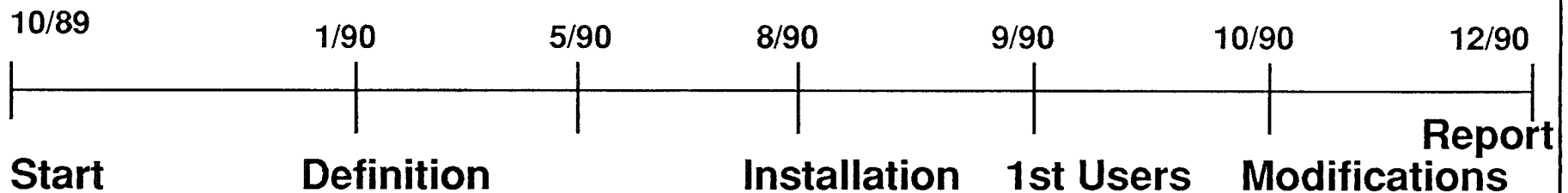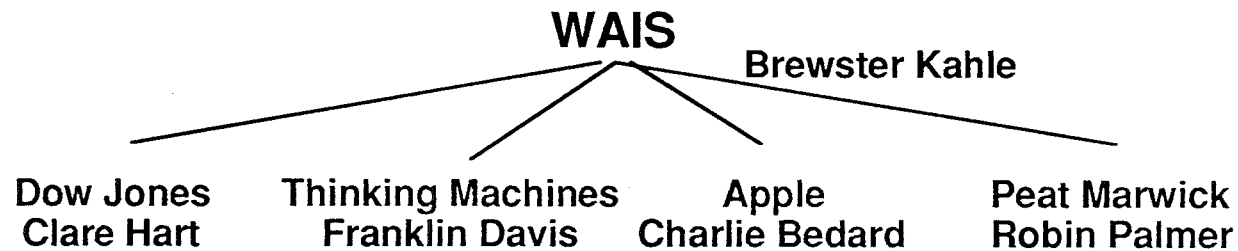   **Reliable Access**

WAIS Team

- **Dow Jones: Premier Published Business Information with a progressive organization**

- **Thinking Machines: Leader in Parallel Computing with experience in large scale text**

- **Apple: Human interface expertise with ability to change system software and evangilize developers**

- **Peat Marwick: Progressive consumers of information with high-tech edge**

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Project Structure

WAIS

Brewster Kahle

Dow Jones
Clare Hart

Thinking Machines
Franklin Davis

Apple
Charlie Bedard

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Robin Palmer

10/89

1/90   5/90   8/90   9/90   10/90   12/90

Report

Start   **Definition**   **Installation**   **1st Users**   **Modifications**

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- English Questions yeild "headlines" to aid retrieval

- Dynamic folders hold responses and will work at night (Newspapers)

- Directory of Servers can be questioned like any other server

- Editors help select important information

- Single Computer-to-Computer Protocol

Demonstration System Structure

WAIS: Princeton

LAN Montvale

San Jose and others

Dow Jones

x.25
Z39.50
9600Baud

Connection Machine

Workstations

. . .

Appletalk
Z39.50
9600Baud

Operations:
 Archiving
 Queries, Retrieval
IR Type:
 Broadcast (DowVision)
 Query by Example
Databases:
 Wall St Journal
 Barron's
 400 Business Mags
 (~1 GByte)

CM: Operations:
 Queries, Retrieval
 IR Type:
 Query by Example
 DBs: DowVision
  Proposals
  Letters
  Resumes
  Pictures
  (400 MBytes)

Mac:
Operations:
 Human Int
 Retrieval
 Queries
 User Profiles
IR Type:
 Query by example
DBs:
 Personal Text

Apple/Thinking Machines/Dow Jones/Peat Marwick

Test Stages

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Future Possibilities

- **More Publishers: Entertainment, Industry reports, Government publications, Direction servers**

- **Better integration into existing systems**

- **IBM PC port**

- **Voicemail, FAX, Video access**

- **We are starting a new industry**

Wide Area Information Servers

Brewster Kahle
Thinking Machines Corporation
August 2, 1990

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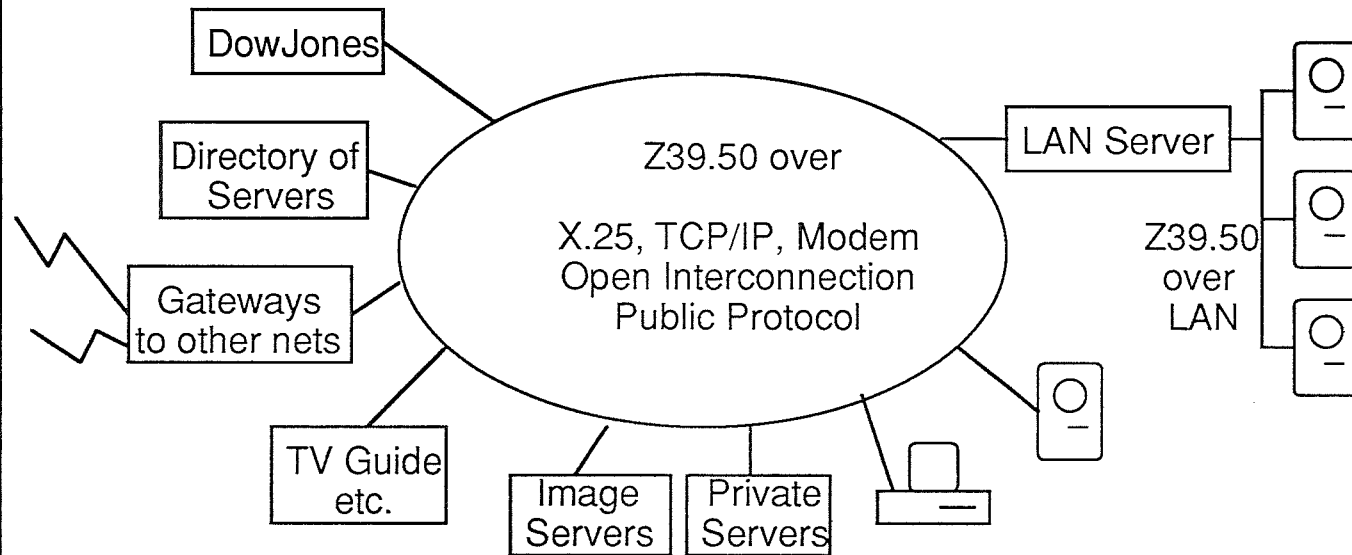- Test Stages
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Real users from the start

- Move into production:
Involve 3rd parties where appropriate

Wide Area Information Server Architecture

DowJones

Directory of Servers

Gateways to other nets

TV Guide etc.

Image Servers

Private Servers

Z39.50 over

X.25, TCP/IP, Modem
Open Interconnection
Public Protocol

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Answering Questions
Staying informed
Organizing Responses

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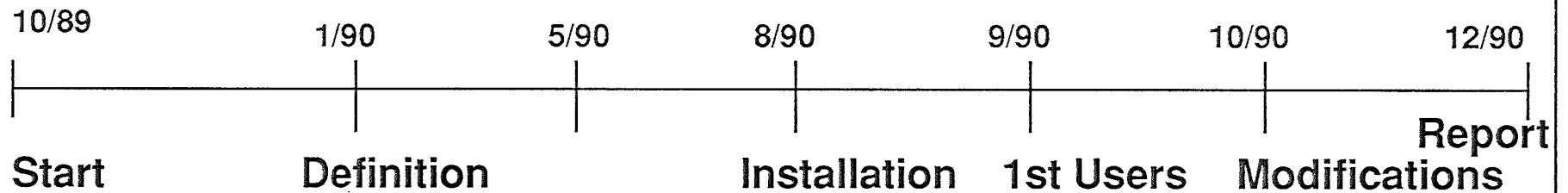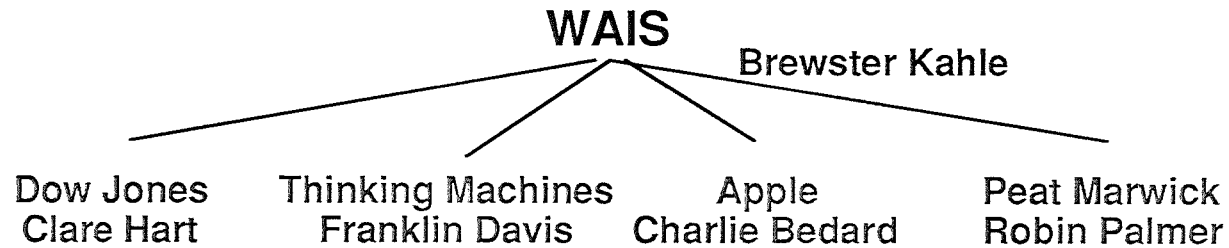Business model for servers
Reliable Access

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Project Structure

WAIS
Brewster Kahle

| Dow Jones | Thinking Machines | Apple | Peat Marwick |
| Clare Hart | Franklin Davis | Charlie Bedard | Robin Palmer |

10/89   1/90   5/90   8/90   9/90   10/90   12/90

Start   Definition   Installation   1st Users   Modifications   Report

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- **Editors help select important information**

- **Single Computer-to-Computer Protocol**

Demonstration System Structure

WAIS: Princeton

Dow Jones

x.25
Z39.50
9600Baud

**LAN
Montvale**

Connection
Machine

San Jose and others

Workstations

Appletalk
Z39.50
9600Baud

Operations:
Archiving
Queries, Retrieval
IR Type:
Broadcast (DowVision)
Query by Example
Databases:
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Mac:
Operations:
Human Int
Retrieval
Queries
User Profiles
IR Type:
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DBs:
Personal Text

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Future Possibilities

- More Publishers: Entertainment, Industry reports, Government publications, Direction servers

- Better integration into existing systems

- IBM PC port

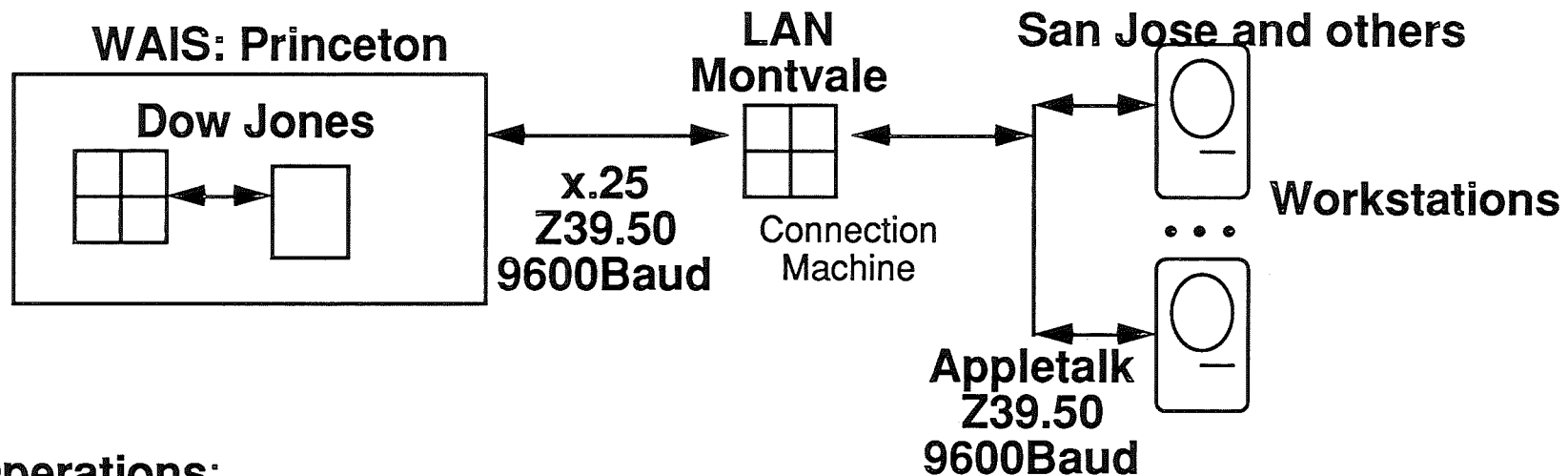- Voicemail, FAX, Video access

- We are starting a new industry

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Dow Jones

x.25
Z39.50
9600Baud

Connection
Machine

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• • •

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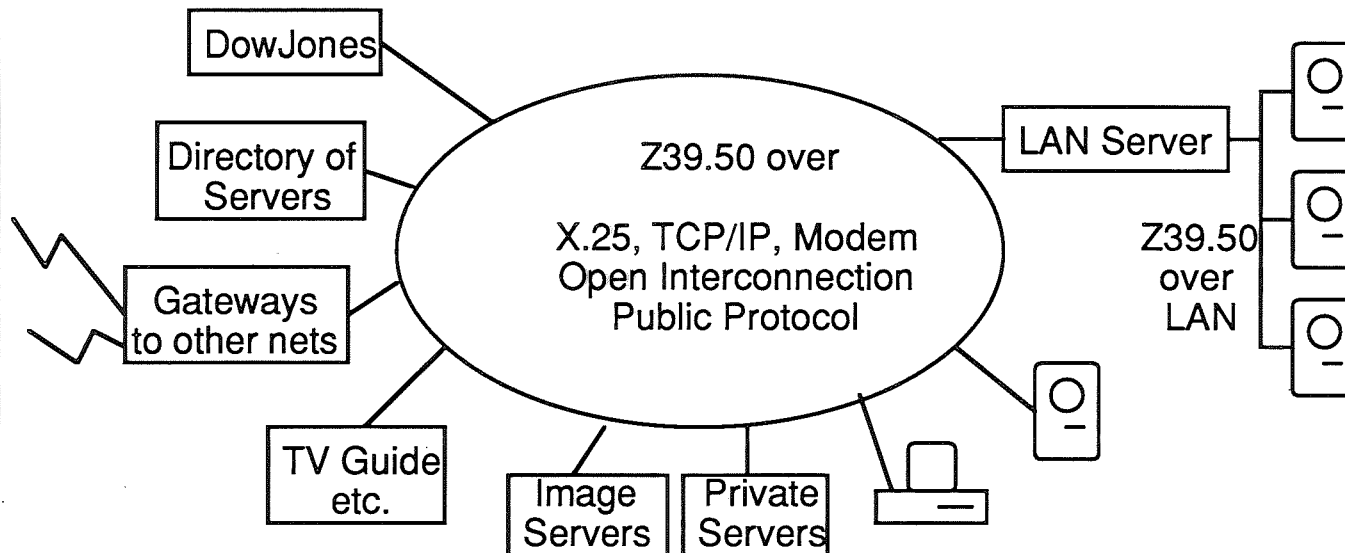**IR Type**:
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any number above if you want more audic/visual support than
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DowJones

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Open Interconnection
Public Protocol

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   Business model for servers
   Reliable Access

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Wide Area Information Servers

Brewster Kahle
Thinking Machines Corporation
August 2, 1990

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- WAIS Team
- Project Pieces
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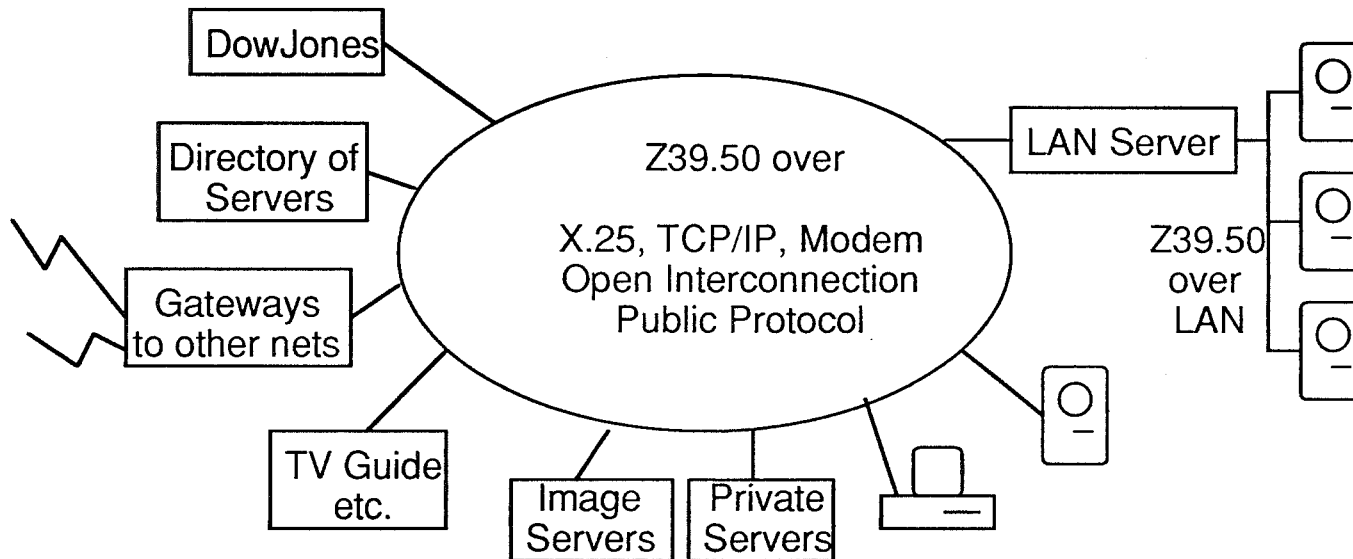- Test Stages
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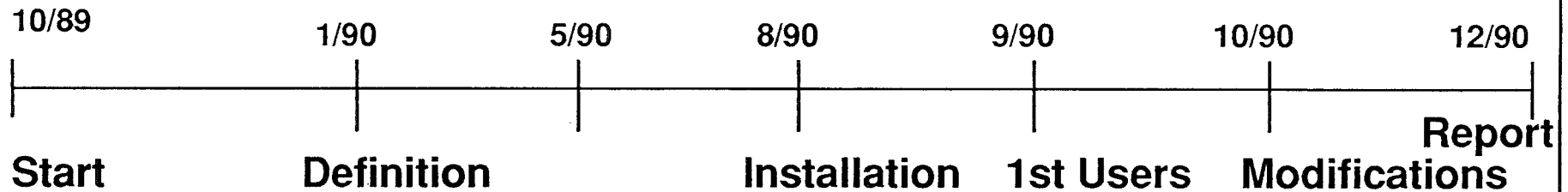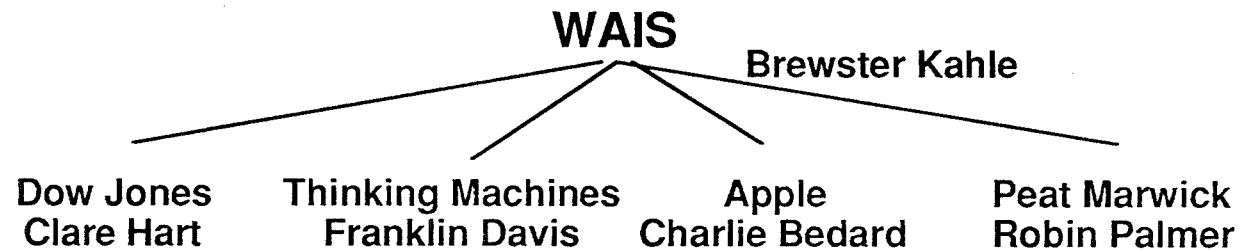 **Reliable Access**

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Project Structure

WAIS — Brewster Kahle

Dow Jones — Thinking Machines — Apple — Peat Marwick
Clare Hart — Franklin Davis — Charlie Bedard — Robin Palmer

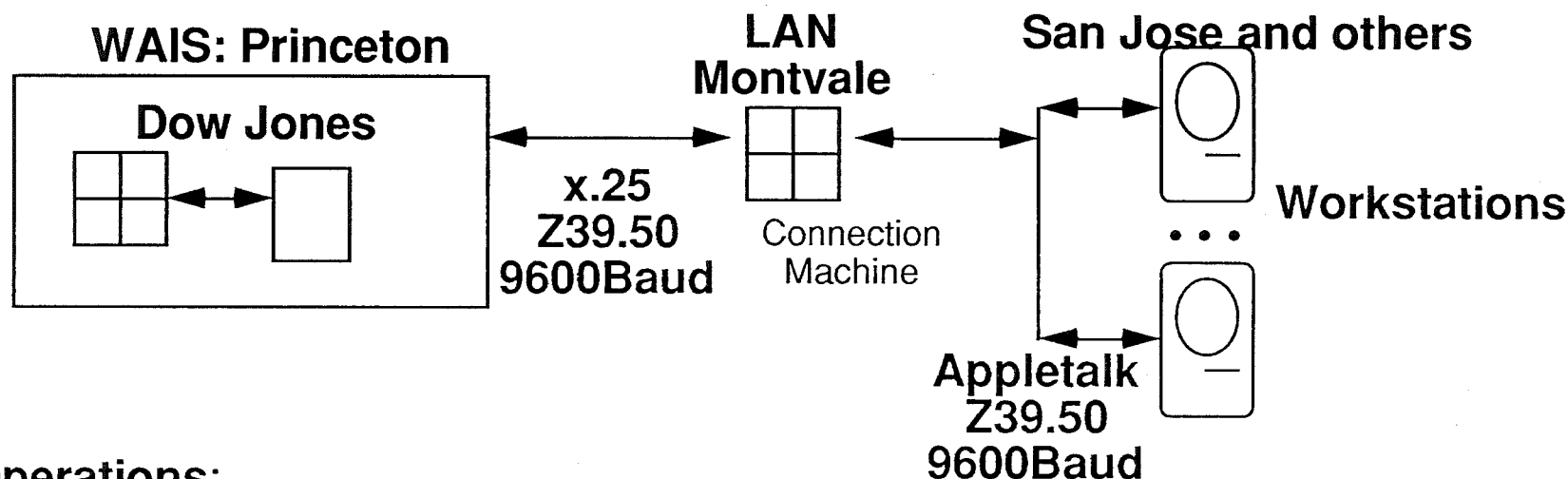| 10/89	1/90	5/90	8/90	9/90	10/90	12/90
Start	Definition		Installation	1st Users	Modifications	Report

Apple/Thinking Machines/Dow Jones/Peat Marwick

7

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Dow Jones

x.25
Z39.50
9600Baud

Connection
Machine

Workstations

• • •

Appletalk
Z39.50
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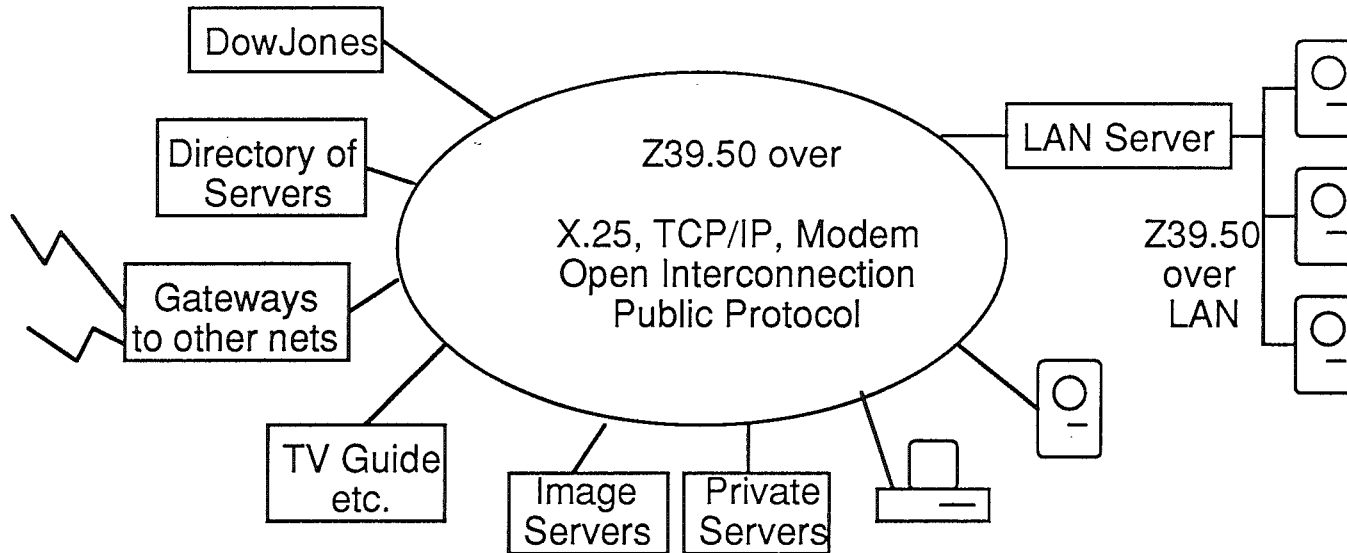- **We are starting a new industry**

Wide Area Information Servers

Brewster Kahle
Thinking Machines Corporation
April 24, 1990

- Goals
- Project Structure
- User's Problem
- Proposed Techniques
- System Structure
    Overview
    Dow Jones
    Thinking Machines
    Apple
    Peat Marwick
- Conclusion

Goals

- Catalyze a market of Wide Area Information Servers

- Establish open protocol for Information Servers

- Produce skeleton Producer ---> Consumer system

- If the system works:
    Move into production at TMC and Dow
    Transfer technology to Apple Products Div
    Evangelize third parties to write Mac software

- Find out what is missing from our system

# Wide Area Information Server Architecture

DowJones

Directory of Servers

Gateways to other nets

TV Guide etc.

Image Servers

Private Servers

Z39.50 over

X.25, TCP/IP, Modem
Open Interconnection
Public Protocol

LAN Server

Z39.50
over
LAN

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Demonstration System Structure

WAIS

LAN

Dow Jones

Mac

Workstations

x.25
Z39.50
9600Baud

Connection
Machine
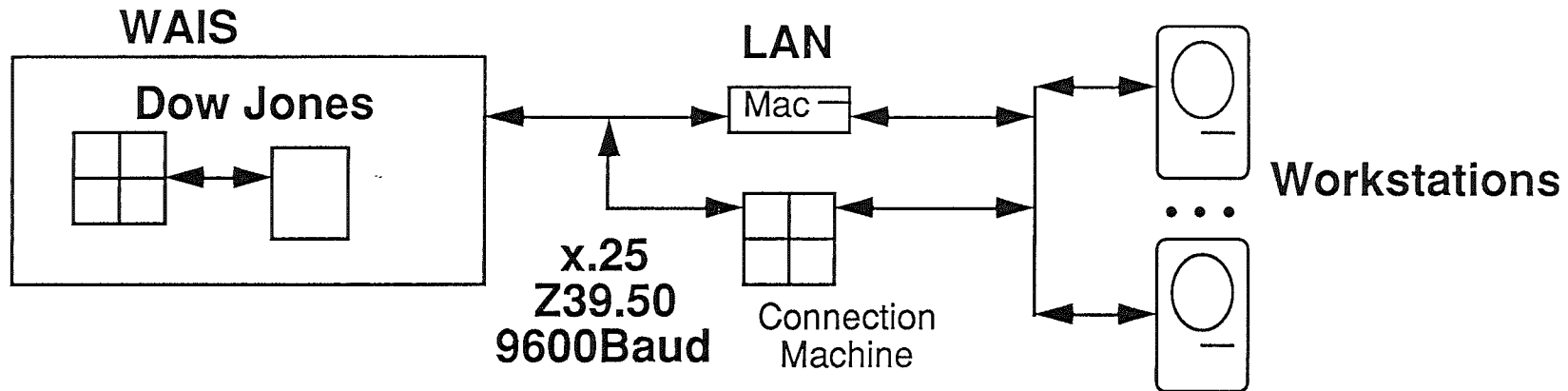
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Archiving
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IR Type:
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Mac:
Operations: Archiving
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IR Type: Query by Example
DBs: Mail, Netnews
Encyclopedias
DowVision

CM: Operations: Queries
IR Type:
enhanced relevance feedback
DBs: DowVision and memo's

Mac:
Operations:
Human Int
Retrieval
Queries
"Caching" Docs
User Profiles
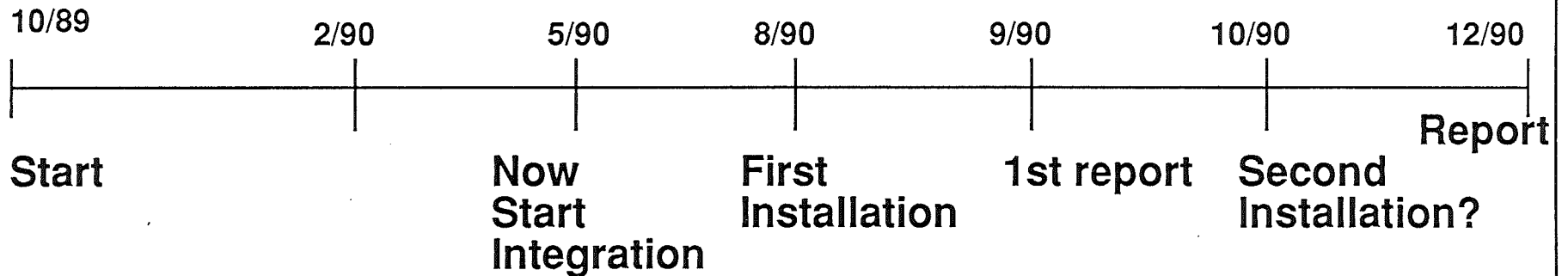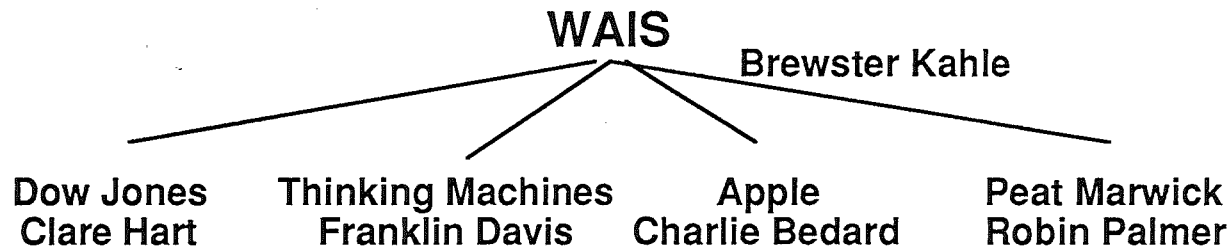**IR Type:**
Query by example
DBs:
Personal Text
Cached data

Information Server Components Status

On Macintosh:
 PLS: working, needs integration
 Simple IR engine: working, needs refinement

On Small Connection Machine:
 Document Retrieval: working, needs refinement

On Unix:
 Simple IR engine: working, needs refinement

At Dow Jones:
 DowQuest: working, 2 weeks to integration

Human Interface Components Status

Apple:
Human interface mocked-up: needs implementation

Thinking Machines:
Human interface: working, needs refinement

8

Communication Component Status

For Macintosh:
X.25 connection to DowVision:	Very close
Serial line (for modems):	working (with WAIStation)
TCP/IP (for LAN and internet):	close(with WAIStation), close (with Apple interface)
Z39.50 library:	working

For Sun (for LAN CM server):
X.25 connection to DowVision:	working
Serial line (for modems):	not started
TCP/IP (for LAN and internet):	working
Z39.50 library:	working

For Dow Jones:
DowVision Interactive:	specification stage
Z39.50 library on VMS:	working
X.25 DowVision Broadcast:	working
Public Data Network path:	specification stage

Apple Components

- User Interface: mocked-up, not implemented

- Information Retrieval Engine for the Mac:
  PLS working, not integrated.
  Simple IR working, not integrated.
- Application Protocol Implementation: done

- Communications Software: some and some

- User Studies: started, waiting for interface

- DowVision support: wobbling

Thinking Machines Components

- **Information Retrieval on the Connection Machine**

- **Application Protocol Implementation for CM**

- **DowVision Support**

Dow Jones Components

- **Application protocol for DowQuest**

- **Provide DowVision to Participants**

Peat Marwick Components

- Provide relevant data

- Select and prepare installation site

- Help with user scenarios

- Feedback design ideas and comments

Conclusion

- **Open new market of information servers**

- **Explore information business for hardware companies**

- **Make a dynamite system soon**

Wide Area Information Servers

Brewster Kahle
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August 2, 1990

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